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## Health Risk Behaviors by Length of Time in the United States among High School Students in Five Sites

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### Abstract

**Background**—One in five public school students are from immigrant-headed households.

**Methods**—We used Youth Risk Behavior Survey (YRBS) data from one state and four large urban school districts to examine whether length of time living in the US was associated with health risk behaviors. Logistic regression models, using weighted data, controlled for sex, race/ethnicity, and grade.

**Results**—Compared to US natives, not having always lived in the US was correlated with lower risk for some behaviors (e.g., current marijuana use and alcohol use) among high school students, but higher risk for other behaviors (e.g., attempted suicide, physical activity). These findings were not consistent across the study sites.

**Discussion**—Interventions that specifically target recently-arrived school-aged youth to prevent behaviors that put health and safety at risk, may result in the best outcomes for immigrant youth. Care should be taken to understand the specific health risks present in different immigrant communities.

### Keywords

Immigrant; acculturation; youth; high school students; health risk behaviors

## INTRODUCTION

In 2010, one in five public school students were from immigrant-headed households (1). The immigrant population is very diverse in terms of country of origin, reason for migration, culture, ethnicity, language spoken, and socio-economic status (1). Initially, being born outside of the United States (US) but living in the US may protect individuals from premature morbidity and mortality, assuming norms of behaviors in the country of origin are

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**Disclaimer:** The findings and conclusions in this paper are those of the authors and do not necessarily represent the

more health promoting than those of the US. However, as youth leave behind the values and norms of their culture and become more “Americanized” (2,3) or “acculturated” (i.e., where members of an immigrant minority group adopt the attitudes and behaviors of the majority group (2)), this protective effect may erode. Acculturated adolescents may be at particularly high risk of adopting the unhealthy behaviors of their peers because of acculturation stresses (i.e., the strains of living with competing values and norms of different cultures (3)) and the desire to establish independence from family and to be accepted by their peers (2).

A growing literature has investigated the association between acculturation and factors that influence health. Studies operationalize acculturation in a variety of ways, such as having parents who were foreign born, length of time in the US, and language spoken at home (2,4–6). Some studies posit that acculturation stresses can lead to depression and poor psychological well-being (7–9), but that support structures can mediate the relationship (7,9). At least two studies have found non-native youth more often experienced bullying victimization and discrimination (6,10) and a number of studies have found that as youth become more acculturated, they become as likely or more likely to use tobacco (7,11,12), alcohol (2,4,7,11,12), and other drugs (5,12); engage in sexual risk behaviors (13); be obese (14), and use computers for recreation which can lead to physical inactivity (15). In general, study findings are inconsistent across racial/ethnic or gender groups for various risk behaviors among foreign-born youth or youth of foreign-born parents (6,13,14,16,17,18) which some studies explored via other mediating factors such as family relationships (4–7,13,19) or behaviors of peers (2,12).

Given the inconsistencies in the literature related to the effect of being foreign born on engaging in health risk behaviors, the purpose of this study was to examine Youth Risk Behavior Survey (YRBS) data from one state and four large urban school districts, accounting for several different geographic regions, to assess the extent to which the length of time a student had lived in the US was associated with a variety of health risk behaviors.

## METHODS

### Sample and survey administration

The Youth Risk Behavior Surveillance System includes ongoing surveys at the national, state, territorial, tribal, and large urban school district levels, as well as one-time national surveys, special-population surveys, and methods studies (20,21). The national YRBS does not include a question about nativity or how long students have lived in the United States; however, a small number of state and large urban school district surveys include a question asking students about time lived in the U.S. in their YRBS. State and large urban school district surveys are conducted biennially and in each survey year, an independent two-stage cluster sample design is used to obtain a representative sample of students in grades 9 through 12 in that jurisdiction.

Student participation in the YRBS is anonymous and voluntary, and the YRBS is conducted in accordance with local parental permission procedures. YRBS participants complete a self-administered questionnaire in English during a regular class period and record their responses on a computer-scannable questionnaire booklet or answer sheet. Students in

English as a second language (ESL) classes or students who do not take academic tests in English are not included in the samples except in Seattle where bilingual education classes are included. State and local health and education agencies followed local Institutional Review Board policies and procedures.

We used data from one state and four large urban school districts in this analysis because these sites included a question about how long the student had lived in the US and because there were adequate numbers of students in each sample who had not always lived in the US. In two sites (Boston and San Francisco) it was possible to combine two years of data (2009 and 2011) because the length of time in the US question was asked in two sequential YRBS cycles. This increased the sample size and improved statistical power. Because the survey is cross-sectional and the sampling for each survey year is independent, it is very unlikely any individual student would be sampled in both years. For the other three sites—New York City, Florida, and Seattle—only one year of data was available. The survey years used, overall response rates, and sample sizes, respectively, for each site included in this analysis were as follows: Florida (year: 2011, response rate: 75%, sample: 6,212), Boston (years: 2009 and 2011, response rates: 77% and 68%, samples: 1,301 and 1,013), New York City (year: 2011, response rate: 73%, sample: 11,570), San Francisco (years: 2009 and 2011, response rates: 84% and 74%, samples: 2,154 and 2,220) and Seattle (year: 2010, response rate: 84%, sample: 1,896).

## Measures

The YRBS addresses the six categories of priority health risk behaviors associated with the leading causes of morbidity and mortality among adults and youth: behaviors that contribute to unintentional injuries and violence, tobacco use, alcohol and other drug use, sexual behaviors that contribute to unintended pregnancy and sexually transmitted diseases, unhealthy dietary behaviors, and physical inactivity. We chose a small number of questions from each of these categories to examine if length of time living in the US was associated with engaging in health risk behaviors. This approach was used because individual studies have tended to focus on one area of health risk and by selecting behaviors from each of the six risk behavior categories measured on the YRBS, we could identify if length of time in the US was protective or harmful for certain categories of risk behaviors but not others. We examined the length of time living in the US using the question, “How long have you lived in the United States.” Response options were “less than one year”, “1 to 3 years”, “4 to 6 years”, “more than 6 years, but not my whole life”, and “I have always lived in the United States.” We collapsed the response options into three categories as follows: six years or less, more than six years but not whole life (herein referred to as more than six years), and have always lived in the US (herein referred to as US native).

## Statistical Analysis

A weighting factor was applied to each record to adjust for school and student nonresponse. To account for the complex sample design of the survey and weighting of student records, we conducted all analyses using SUDAAN statistical software (Research Triangle Institute, Research Triangle Park, North Carolina). We used logistic regression models, controlling for sex, race/ethnicity, and grade to examine the association between length of time living in

the US and risk behaviors. For each model, US native was the referent. We considered differences significant at  $p < 0.05$ .

## RESULTS

Across the five sites, sex and grade distributions were similar; however, the proportion of students in each racial/ethnic and time in the US category differed (Table 1). Florida had the lowest proportion of non-US native students (18.0%); San Francisco had the highest proportion of non-US native students (32.2%).

### Unintentional Injuries and Violence

Across the five sites and three categories of time in the US, the percentage of students who had not gone to school because of safety concerns ranged from 3.3% to 15.4%, who had been threatened or injured with a weapon on school property ranged from 5.9% to 14.7%, who were in a physical fight ranged from 18.1% to 34.2%, had been bullied on school property ranged from 10.5% to 20.7%, who had been electronically bullied ranged from 8.5% to 14.8%, and had attempted suicide ranged from 5.4% to 19.0% (Table 2).

Compared to US natives, students who had lived in the US for six years or less had higher adjusted odds of not going to school because of safety concerns in Florida (Adjusted OR [AOR]=2.4 [95% confidence interval=1.6, 3.5]), Boston (AOR=2.0 [1.1, 3.5]), San Francisco (AOR=4.9 [3.5, 6.9]), and Seattle (AOR=4.7 [2.4, 9.3]), (Table 3). Compared to US natives, students who had lived in the US for six years or less had higher adjusted odds of being threatened or injured with a weapon on school property in Florida (AOR=1.9 [1.4, 2.7]) and San Francisco (AOR=1.8 [1.3, 2.5]). In Boston, students who had lived in the US for six years or less had a lower adjusted odds of being in a physical fight compared to US natives (AOR=0.7 [0.5, 1.0]).

In Seattle, the adjusted odds of being bullied on school property was higher among students who had lived in the US for more than six years compared to US natives (AOR=1.7 [1.2, 2.6]), but there was no association with length of time in the US and being electronically bullied. Conversely, in New York city, the adjusted odds of being electronically bullied was lower among students who had lived in the US for more than six years compared to US natives (AOR=0.7 [0.6, 1.0]), but there was no association with length of time in the US and being bullied on school property.

In each of the five sites, length of time in the US was associated with attempted suicide. Compared to US natives, students who had lived in the US for six years or less had higher adjusted odds of attempted suicide in Florida (AOR=2.8 [1.9, 4.2]), New York City (AOR=1.5 [1.1, 2.0]), San Francisco (AOR=2.0 [1.4, 2.7]), and Seattle (AOR=3.9 [2.2, 6.8]); however, in Boston, the adjusted odds of attempted suicide was higher among students who had lived in the US for more than six years (AOR=1.7 [1.1, 2.8]).

### Use of Cigarettes, Alcohol, and Marijuana

Across the five sites and three categories of time in the US, the percentage of students who were current cigarette users ranged from 5.0% to 17.4%, who were current alcohol users

ranged from 15.3% to 40.5%, and who were current marijuana users ranged from 7.0% to 25.6% (Table 4).

In New York City, compared to US natives, students who had lived in the US for more than six years had a higher adjusted odds of current cigarette use (AOR=1.3 [1.0, 1.7]); however, in Boston students who had lived in the US for six years or less had a lower adjusted odds of current cigarette use (AOR=0.5 [0.2, 1.0]) (Table 5). Compared to US natives, the adjusted odds of current alcohol use were lower among students who had lived in the US for six years or less in Boston (AOR=0.7 [0.5, 0.9]), New York City (AOR=0.6 [0.5, 0.7]), and Seattle (AOR=0.4 [0.2, 0.7]). In Seattle, the adjusted odds of current alcohol use also was lower among students who had lived in the US for more than six years (AOR=0.5 [0.3, 0.8]). In contrast, in Florida, the adjusted odds of current alcohol use was higher among students who had lived in the US for more than six years (AOR=1.2 [1.0, 1.5]) compared to US natives. Length of time in the US was associated with current marijuana use in all five sites. Compared to US natives, the adjusted odds of current marijuana use were lower among students who had lived in the US for six years or less (AORs ranged from 0.2–0.6).

### Sexual Risk Behaviors

Across the five sites and three categories of time in the US, the percentage of students who ever had sexual intercourse ranged from 18.9% to 58.0% and who had sexual intercourse with four or more persons during their life ranged from 4.4% to 22.7% (Table 4). Compared to US natives, the adjusted odds of ever having sexual intercourse were lower among students who had lived in the US for six years or less in Boston (AOR=0.6 [0.4, 0.9] and Seattle (AOR=0.5 [0.3, 0.8]) and lower in Seattle among students who had lived in the US for more than six years (AOR=0.6 [0.4, 0.9]) (Table 5). Having sexual intercourse with four or more persons during their life was not associated with length of time in the US in any of the five sites.

### Physical Inactivity

Across the five sites and three categories of time in the US, the percentage of students who watched television three or more hours/day on an average school day ranged from 21.9% to 45.4%, who used a computer three or more hours/day on an average school day for something that was not school work ranged from 27.6% to 45.5%, and who were physically active at least 60 minutes/day on five or more days during the seven days before the survey ranged from 14.3% to 44.7% (Table 6).

Compared to US natives, the adjusted odds of having watched television three or more hours/day on an average school day were lower among students who had lived in the US for six years or less in Boston (AOR=0.6 [0.4, 1.0]) and San Francisco (AOR=0.8 [0.6, 0.9]) (Table 7). The adjusted odds of using a computer three or more hours/day for something that was not school work were lower among students who had lived in the US for six years or less in New York City (AOR=0.7 [0.5, 0.8]) and San Francisco (AOR=0.8 [0.6, 0.9]) and in Boston lower among students who had lived in the US for more than six years (AOR=0.7 [0.6, 1.0]).

Length of time in the US was associated with being physically active at least 60 minutes/day on five or more days in all five sites. Compared to US natives, the adjusted odds of being physically active at least 60 minutes/day on five or more days were lower among students who had lived in the US for six years or less (AORs ranged from 0.3–0.7).

### Overweight and Obesity

Across the five sites and three categories of time in the US, the percentage of students who were overweight ranged from 7.8% to 19.6% and who were obese ranged from 5.2% to 16.6% (Table 6). In San Francisco only, overweight was associated with length of time in the US (Table 7). Compared to US natives, the adjusted odds of being overweight was lower among students who had lived in the US for six years or less (AOR=0.6 [0.4, 0.9]). The adjusted odds of being obese were lower among students who had lived in the US for six years or less compared to US natives in Boston (AOR=0.6 [0.4, 1.0]) and New York City (AOR=0.5 [0.4, 0.8]).

## DISCUSSION

This study found that compared to US natives, not having always lived in the US was correlated with higher risk for some behaviors among high school students but correlated with lower risk for other behaviors, though these findings were not always consistent across the five study sites. For example, compared to US natives, immigrant youth had significantly higher odds of attempting suicide (all five sites), not going to school because of safety concerns (four sites), and had significantly lower odds of being physically active at least 60 minutes per day on five or more days (all five sites). In contrast, compared to US natives, immigrated students had significantly lower odds of current alcohol (3 sites) and marijuana use (all five sites). There are many individual and community-level factors both before and after migration to the US that could explain these results, but the dataset does not allow an in-depth analysis of these factors. Acculturation is one factor associated with youth health risk behaviors and, in this analysis, time in the US is used as a proxy for acculturation.

Our findings are consistent with other studies that suggest that less acculturated youth (i.e., recent immigrants) are at lower risk of alcohol and marijuana use (2,4,5,7,11,12), but higher risk of suicide attempts (2,4,7,11,12). In the case of suicide, the pressures of living with competing values and norms of different cultures (i.e., acculturation stress) may play a role (3). Our findings differed from those of earlier studies of acculturation and sexual risk behaviors. In a literature review examining acculturation and sexual activity among Latino youth, Afaible-Munsuz and Brindis (3) found a positive association between acculturation and sexual activity in most of the studies in their review. Our current analysis found a negative association in two sites between time in the US and ever having sexual intercourse and no association between time in the US and having four or more sexual partners. Differences in these findings may be a function of differences in how acculturation was measured or in the samples studied.

Immigrants to the US may come from countries or local cultures that have different patterns of risk behaviors. The questionnaires used by the five sites included in this analysis did not



contain a question about immigrant students' country of origin making it impossible to examine the influence of students' cultural background. Extending the protective effect of cultural norms from the country of origin has been shown to reduce a variety of risk behaviors among immigrant college students in the US (22). Another known protective factor against risk behaviors among youth is a positive parent-child bond. (19,23–28). In the case of families new to the US, an acculturation gap often forms when parents are slower to adopt the American culture than their children, causing conflict between parent and child (19,26). This acculturation gap and the subsequent conflict caused can serve as an additional risk factor for adolescent risk behaviors (19). For example, Hahm et al. found that Asian-American youth with medium or high parental attachment did not have significantly higher alcohol use even when acculturation was high (4). Likewise, a study of Hispanic immigrant adolescents of primarily Cuban descent found that youth who reported higher levels of parent communication were less likely to engage in cigarette smoking, alcohol use, and sexual risk behaviors (13). Similar finding were not seen among Hispanic immigrants of Mexican descent (13). The authors suggest, "Hispanics are *not* a monolithic group and . . . their countries of origin, as well as the characteristics of specific communities where they settle, may affect their health (13, pS32). Peer influence is another important factor for adoption of risk behaviors among youth (2,29). For example, a national study found that the positive association between acculturation and binge drinking among Asian American adolescents disappeared when peer use of alcohol and tobacco was included in the analysis (2). These reports and others (13,30) suggest that work to help maintain protective cultural practices, strong family bonds, and positive peer influences may promote better health outcomes in non-native youth.

Students living in the US for six years or less were most likely to skip school because of safety concerns across all sites included in this analysis. This could be because they live in unsafe neighborhoods or because the schools are perceived as less safe than schools in their origin countries. Recent immigrants may also be less familiar with the environment or culture in their new schools and may be less capable of dealing with real or perceived safety concerns. To address this absenteeism, schools could assess factors contributing to student safety concerns and could provide students with information on safety resources in the school and community.

More research to evaluate the contribution of individual and community risk factors on immigrant youth risk behaviors may help better target interventions to specific populations and risk behaviors. Improved availability of data that examines factors such as time in the US, country of birth for students and parents, and language spoken may allow improved monitoring of risk behaviors among young immigrant populations, how acculturation may affect those risk behaviors, and which interventions are most effective for improving health among different immigrant populations. General recommendations for interventions include school and community-based programs that promote culturally and linguistically appropriate health education, suicide prevention, physical activity opportunities, and safe school climates targeted to recent immigrant youth (6,9). For these programs to succeed it will be critical to engage and educate parents and caretakers of immigrant youth. In addition, school

personnel will be most effective if they are educated on the specific needs identified among recently immigrated youth.

The findings of this report should be considered in the context of some limitations. Although the reading level of the YRBS is at a middle school level, it was only administered in English in the five sites included in this analysis and some students, particularly the most recent arrivals to the US, may have had difficulty responding because of limited English proficiency. The extent to which that may be the case cannot be determined. Classes with students who do not take academic tests in English or English as a second language (ESL) classes were not sampled in four of the five sites. This could have resulted in samples that underrepresent immigrant students who most recently arrived. An additional limitation of this study is the use of a single variable to measure the complex process of acculturation and its effect on risk behaviors. For example, these data do not include age of arrival in the US, which affects the acculturative process in migrants (31,32). Data from the one state used for this analysis includes both urban and rural areas. It is not possible to determine how risk behavior profiles among immigrant youth might differ in that state's large urban areas compared to rural or agriculture areas. Although race/ethnic was a control variable in the logistic regression models, the racial/ethnic makeup of the five sites varies considerably. The influence of immigrant students' cultural backgrounds on acculturation and adoption of risk behaviors from site to site cannot be determined using YRBS data. The data are based on self-report and the extent of overreporting or underreporting cannot be determined, although the survey questions have demonstrated good test-retest reliability (33). Finally, the findings of this study are generalizable only to youth attending schools in the sites included in this study and are not nationally representative.

## CONCLUSIONS

This study supports prior findings that time in the US is associated with some risk behaviors among youth and that youth living in the US for 6 years or less when compared to U.S. natives were particularly vulnerable to some risk behaviors. For example, suicide attempts or lack of physical activity were more likely to occur among recent arrivals, but risk behaviors such as drug and alcohol use were less likely in this population compared to U.S. natives. Importantly, this study found considerable diversity across risk behaviors and across survey sites which suggests that broad generalizations are difficult and that public health interventions would benefit from learning about the particular population at risk and the risk behaviors most prevalent among immigrant youth in that specific community.

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**Table 1**  
Demographic Characteristics, by Location—Selected U.S. Sites, Youth Risk Behavior Surveys

	Florida (2011)	Boston (2009 and 2011)	New York City (2011)	San Francisco (2009 and 2011)	Seattle (2010)
	% (n) <sup>a</sup>	% (n)	% (n)	% (n)	% (n)
<b>Sex</b>					
Female	49.2 (3227)	49.3 (1160)	50.0 (6104)	49.2 (2063)	47.9 (920)
Male	50.8 (2946)	50.7 (1146)	50.0 (5424)	50.8 (4336)	52.1 (1877)
<b>Race/Ethnicity</b>					
Non-Hispanic White	45.5 (2435)	13.5 (284)	14.1 (1283)	8.1 (263)	40.0 (665)
Non-Hispanic Black	22.7 (1387)	39.6 (819)	34.6 (3031)	9.5 (227)	22.5 (294)
Hispanic	26.2 (1736)	36.0 (788)	35.4 (5078)	20.2 (862)	6.3 (248)
Non-Hispanic Asian	1.9 (175)	7.3 (194)	15.0 (1020)	49.2 (2280)	24.7 (332)
Non-Hispanic Other	3.6 (333)	3.7 (159)	0.9 (632)	13.0 (625)	6.5 (280)
<b>Grade</b>					
9th	27.4 (1726)	27.7 (699)	29.8 (3164)	26.2 (1114)	29.1 (654)
10th	26.1 (1669)	24.2 (615)	27.3 (2999)	25.9 (1012)	26.0 (484)
11th	23.8 (1446)	23.3 (397)	22.2 (2717)	24.4 (1002)	22.9 (374)
12th	22.7 (1299)	24.9 (578)	20.6 (2540)	23.5 (1195)	22.1 (355)
<b>Time in the United States</b>					
Lived in the US for 6 years	7.8 (495)	10.0 (223)	10.4 (1007)	20.6 (904)	13.1 (226)
Lived in the US for > 6 years <sup>b</sup>	10.2 (656)	14.2 (310)	15.2 (1626)	11.6 (505)	11.3 (221)
US native <sup>c</sup>	82.0 (4816)	75.9 (1621)	74.4 (8827)	67.8 (2924)	75.6 (1422)

<sup>a</sup>Weighted percentages and unweighted n's.

<sup>b</sup>But not their whole life.

<sup>c</sup>Have always lived in the US.

Table 2

Percentage of Students Engaging in Unintentional Injury and Violence-Related Risk Behaviors, by Location and Time in the US—Selected U.S. Sites, Youth Risk Behavior Surveys

	Florida (2011) % (95% CI)	Boston (2009 and 2011) % (95% CI)	New York City (2011) % (95% CI)	San Francisco (2009 and 2011) % (95% CI)	Seattle (2010) % (95% CI)
<b>Did not go to school because of safety concerns<sup>a</sup></b>					
Lived in the US for 6 years	15.4 (12.4–19.0)	11.1 (6.6–18.1)	10.2 (8.3–12.6)	14.1 (11.3–17.3)	11.8 (7.4–18.2)
Lived in the US for > 6 years <sup>b</sup>	8.2 (6.0–11.1)	5.8 (2.9–11.1)	7.1 (5.2–9.6)	5.9 (4.0–8.6)	7.6 (4.1–13.9)
US native <sup>c</sup>	5.4 (4.3–6.6)	6.0 (4.9–7.4)	8.3 (7.3–9.4)	4.1 (3.3–5.1)	3.3 (2.4–4.4)
<b>Threatened or injured with a weapon on school property<sup>d,e</sup></b>					
Lived in the US for 6 years	14.7 (11.5–18.5)	6.0 (3.2–10.9)	8.8 (6.2–12.4)	9.9 (7.7–12.7)	9.8 (6.0–15.7)
Lived in the US for > 6 years	7.1 (5.0–9.9)	8.1 (5.0–13.0)	6.1 (4.6–8.1)	6.4 (4.5–9.1)	7.5 (3.6–14.8)
US native	6.4 (5.8–7.0)	7.3 (5.9–9.1)	6.3 (5.5–7.3)	6.1 (5.1–7.2)	5.9 (4.6–7.4)
<b>In a physical fight<sup>e</sup></b>					
Lived in the US for 6 years	32.8 (27.8–38.3)	22.5 (17.4–28.6)	27.3 (23.7–31.2)	18.1 (15.1–21.5)	na
Lived in the US for > 6 years	29.5 (25.9–33.4)	30.9 (25.0–37.6)	26.8 (23.1–30.9)	20.4 (16.5–25.1)	na
US native	27.0 (25.4–28.6)	34.2 (30.8–37.7)	29.0 (26.7–31.4)	20.8 (18.9–22.8)	na
<b>Bullied on school property<sup>f</sup></b>					
Lived in the US for 6 years	18.2 (14.5–22.5)	15.8 (10.3–23.5)	12.1 (10.3–14.3)	11.5 (9.2–14.2)	10.5 (6.7–16.3)
Lived in the US for > 6 years	12.9 (10.7–15.6)	14.3 (10.2–19.6)	11.2 (8.7–14.3)	14.0 (10.8–18.0)	20.7 (15.5–27.0)
US native	13.6 (12.3–15.1)	13.0 (10.8–15.4)	11.6 (10.3–13.1)	11.1 (9.9–12.4)	13.6 (11.8–15.5)
<b>Electronically bullied<sup>f,g</sup></b>					
Lived in the US for 6 years	14.8 (11.5–18.7)	12.2 (7.7–18.8) <sup>h</sup>	12.2 (10.3–14.3)	10.8 (7.6–15.3) <sup>h</sup>	8.6 (5.3–13.6)
Lived in the US for > 6 years	10.3 (8.2–12.8)	11.8 (7.3–18.5) <sup>h</sup>	8.5 (7.0–10.4)	11.1 (7.8–15.6) <sup>h</sup>	12.4 (7.7–19.2)
US native	12.3 (11.0–13.7)	10.3 (7.9–13.5) <sup>h</sup>	11.2 (10.2–12.3)	11.4 (9.6–13.6) <sup>h</sup>	9.5 (8.1–11.2)
<b>Attempted suicide<sup>e</sup></b>					
Lived in the US for 6 years	18.1 (14.1–22.9)	14.3 (8.1–24.1)	12.2 (9.6–15.5)	14.3 (11.7–17.5)	19.0 (12.9–27.2)
Lived in the US for > 6 years	7.4 (5.2–10.3)	14.8 (10.0–21.2)	6.7 (5.2–8.5)	9.6 (6.6–13.6)	7.7 (4.3–13.5)

	Florida (2011)	Boston (2009 and 2011)	New York City (2011)	San Francisco (2009 and 2011)	Seattle (2010)
	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)
US native	5.9 (5.1–6.9)	8.9 (7.4–10.8)	8.2 (7.3– 9.2)	7.6 (6.6–8.8)	5.4 (4.3–6.7)

Abbreviations: CI = confidence interval; na = not asked at this site.

<sup>a</sup> Felt unsafe at school on their way to or from school on at least 1 day during the 30 days before the survey.

<sup>b</sup> But not their whole life.

<sup>c</sup> Have always lived in the US.

<sup>d</sup> For example, a gun, knife, or club

<sup>e</sup> One or more times during the 12 months before the survey.

<sup>f</sup> During the 12 months before the survey.

<sup>g</sup> Including being bullied through e-mail, chat rooms, instant messaging, Web sites, or texting.

<sup>h</sup> Asked in 2011 only.

Adjusted Odds of Unintentional Injury and Violence-Related Risk Behaviors, by Location and Time in the US—Selected U.S. Sites, Youth Risk Behavior Surveys

**Table 3**

	Florida (2011) AOR (95% CI)	Boston (2009 and 2011) AOR (95% CI)	New York City (2011) AOR (95% CI)	San Francisco (2009 and 2011) AOR (95% CI)	Seattle (2010) AOR (95% CI)
<b>Did not go to school because of safety concerns<sup>a</sup></b>					
Lived in the US for 6 years	<b>2.4 (1.6, 3.5)</b> ***	<b>2.0 (1.1, 3.5)</b> *	1.3 (1.0, 1.6)	<b>4.9 (3.5, 6.9)</b> ***	<b>4.7 (2.4, 9.3)</b> ***
Lived in the US for > 6 years <sup>b</sup>	1.4 (1.0, 2.0)	0.9 (0.5, 1.9)	0.9 (0.6, 1.3)	1.4 (0.8, 2.5)	2.2 (0.9, 5.2)
US native <sup>c</sup>	1.0	1.0	1.0	1.0	1.0
<b>Threatened or injured with a weapon on school property<sup>d,e</sup></b>					
Lived in the US for 6 years	<b>1.9 (1.4, 2.7)</b> **	0.9 (0.4, 1.8)	1.2 (0.8, 1.8)	<b>1.8 (1.3, 2.5)</b> ***	1.5 (0.8, 2.9)
Lived in the US for > 6 years	1.0 (0.7, 1.6)	1.3 (0.7, 2.3)	1.1 (0.8, 1.5)	1.1 (0.7, 1.6)	1.4 (0.7, 2.9)
US native	1.0	1.0	1.0	1.0	1.0
<b>In a physical fight<sup>e</sup></b>					
Lived in the US for 6 years	1.1 (0.8, 1.3)	<b>0.7 (0.5, 1.0)</b> *	0.9 (0.8, 1.2)	1.1 (0.8, 1.3)	na
Lived in the US for > 6 years	1.1 (0.9, 1.3)	0.9 (0.7, 1.3)	1.0 (0.8, 1.3)	1.1 (0.8, 1.5)	na
US native	1.0	1.0	1.0	1.0	na
<b>Bullied on school property<sup>f</sup></b>					
Lived in the US for 6 years	1.4 (1.0, 2.0)	1.5 (0.9, 2.4)	1.1 (0.9, 1.4)	1.0 (0.7, 1.4)	0.8 (0.4, 1.4)
Lived in the US for > 6 years	1.0 (0.8, 1.4)	1.1 (0.6, 1.8)	1.0 (0.7, 1.3)	1.4 (1.0, 1.9)	<b>1.7 (1.2, 2.6)</b> **
US native	1.0	1.0	1.0	1.0	1.0
<b>Electronically bullied<sup>f,g</sup></b>					
Lived in the US for 6 years	1.4 (0.9, 2.1)	1.1 (0.6, 2.1) <sup>h</sup>	1.0 (0.8, 1.4)	1.0 (0.6, 1.6) <sup>h</sup>	1.0 (0.6, 1.9)
Lived in the US for > 6 years	0.9 (0.7, 1.2)	1.1 (0.6, 2.2) <sup>h</sup>	<b>0.7 (0.6, 1.0)</b> *	1.0 (0.7, 1.6) <sup>h</sup>	1.6 (0.9, 3.0)
US native	1.0	1.0	1.0	1.0	1.0
<b>Attempted suicide<sup>e</sup></b>					
Lived in the US for 6 years	<b>2.8 (1.9, 4.2)</b> ***	1.7 (0.9, 3.3)	<b>1.5 (1.1, 2.0)</b> **	<b>2.0 (1.4, 2.7)</b> ***	<b>3.9 (2.2, 6.8)</b> ***



	Florida (2011) AOR (95% CI)	Boston (2009 and 2011) AOR (95% CI)	New York City (2011) AOR (95% CI)	San Francisco (2009 and 2011) AOR (95% CI)	Seattle (2010) AOR (95% CI)
Lived in the US for > 6 years	1.1 (0.7, 1.7)	<b>1.7 (1.1, 2.8)*</b>	0.8 (0.6, 1.1)	1.2 (0.8, 2.0)	1.5 (0.8, 3.0)
US native	1.0	1.0	1.0	1.0	1.0

\* p<.05;

\*\* p<.01;

\*\*\* p<.001 (Statistically significant results are shown in bold).

Abbreviations: AOR= adjusted odds ratio (logistic regression models control for sex, race/ethnicity, and grade); CI = confidence interval; na = not asked at this site.

<sup>a</sup> Felt unsafe at school on their way to or from school on at least 1 day during the 30 days before the survey.

<sup>b</sup> But not their whole life.

<sup>c</sup> Have always lived in the US.

<sup>d</sup> For example, a gun, knife, or club

<sup>e</sup> One or more times during the 12 months before the survey.

<sup>f</sup> During the 12 months before the survey.

<sup>g</sup> Including being bullied through e-mail, chat rooms, instant messaging, Web sites, or texting.

<sup>h</sup> Asked in 2011 only.

Table 4

Percentage of Students Engaging in Cigarette, Alcohol, and Marijuana Use and Sexual Risk Behaviors, by Location and Time in the US—Selected U.S. Sites, Youth Risk Behavior Surveys

	Florida (2011) % (95% CI)	Boston (2009 and 2011) % (95% CI)	New York City (2011) % (95% CI)	San Francisco (2009 and 2011) % (95% CI)	Seattle (2010) % (95% CI)
<b>Current cigarette use<sup>d</sup></b>					
Lived in the US for 6 years	17.4 (13.9–21.5)	5.0 (2.8–8.9)	6.8 (4.9–9.4)	10.0 (7.9–12.5)	8.2 (4.7–13.9)
Lived in the US for > 6 years <sup>b</sup>	14.7 (11.6–18.4)	8.6 (5.7–12.8)	10.0 (7.8–12.8)	12.3 (9.6–15.8)	8.2 (4.7–13.9)
US native <sup>c</sup>	14.0 (12.6–15.5)	10.5 (7.9–13.8)	8.4 (7.4–9.5)	10.4 (9.2–11.7)	9.1 (7.1–11.6)
<b>Current alcohol use<sup>d</sup></b>					
Lived in the US for 6 years	36.6 (31.5–42.0)	29.4 (23.4–36.2)	20.2 (17.1–23.6)	15.7 (12.9–18.8)	15.6 (10.7–22.1)
Lived in the US for > 6 years	40.5 (36.4–44.8)	39.1 (32.2–46.4)	29.6 (25.0–34.7)	26.5 (21.8–31.7)	15.3 (11.1–20.7)
US native	36.6 (34.4–38.8)	36.5 (33.3–39.9)	32.2 (30.3–34.2)	23.6 (21.7–25.7)	30.6 (26.7–34.7)
<b>Current marijuana use<sup>e</sup></b>					
Lived in the US for 6 years	17.2 (13.0–22.5)	7.6 (4.3–13.8)	11.4 (9.2–13.9)	7.0 (5.2–9.3)	12.3 (7.4–19.6)
Lived in the US for > 6 years	23.0 (19.0–27.6)	19.7 (15.1–25.2)	13.8 (11.1–17.0)	18.6 (14.8–23.0)	16.4 (11.5–22.8)
US native	22.9 (21.2–24.8)	25.6 (23.1–28.4)	19.4 (17.8–21.1)	19.7 (17.8–21.6)	22.8 (19.8–26.0)
<b>Ever had sexual intercourse</b>					
Lived in the US for 6 years	48.5 (43.2–53.7)	44.5 (37.2–52.0)	31.3 (24.4–39.2)	19.5 (16.2–23.4)	22.2 (16.2–29.6)
Lived in the US for > 6 years	49.4 (44.4–54.3)	58.0 (51.2–64.6)	37.5 (31.4–44.0)	31.6 (27.0–36.7)	18.9 (13.7–25.6)
US native	47.8 (45.5–50.0)	54.1 (50.1–58.0)	38.7 (35.6–41.9)	30.2 (27.5–33.0)	32.2 (28.0–36.8)
<b>Had sexual intercourse with four or more persons during their life</b>					
Lived in the US for 6 years	22.1 (17.5–27.6)	16.6 (12.0–22.6)	9.2 (6.3–13.4)	7.6 (5.8–10.0)	7.0 (3.8–12.5)
Lived in the US for > 6 years	17.8 (13.9–22.5)	22.7 (17.5–28.9)	12.3 (9.2–16.4)	7.4 (5.0–10.8)	4.4 (2.2–8.8)
US native	15.1 (13.7–16.6)	20.9 (18.0–24.1)	12.7 (11.1–14.4)	8.8 (7.4–10.3)	7.6 (6.0–9.6)

Abbreviations: CI = confidence interval.

<sup>a</sup> Smoked cigarettes on at least 1 day during the 30 days before the survey.

<sup>b</sup> But not their whole life.

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Have always lived in the US.  
Had at least one drink of alcohol on at least 1 day during the 30 days before the survey.  
Used marijuana one or more times during the 30 days before the survey.

**Table 5**

Adjusted Odds of Engaging in Cigarette, Alcohol, and Marijuana Use and Sexual Risk Behaviors, by Location and Time in the US—Selected U.S. Sites, Youth Risk Behavior Surveys

	Florida (2011) AOR (95% CI)	Boston (2009 and 2011) AOR (95% CI)	New York City (2011) AOR (95% CI)	San Francisco (2009 and 2011) AOR (95% CI)	Seattle (2010) AOR (95% CI)
<b>Current cigarette use<sup>d</sup></b>					
Lived in the US for 6 years	1.3 (1.0, 1.7)	<b>0.5 (0.2, 1.0)*</b>	0.8 (0.5, 1.1)	1.2 (0.9, 1.6)	0.7 (0.3, 1.7)
Lived in the US for > 6 years <sup>b</sup>	1.1 (0.9, 1.4)	0.9 (0.5, 1.5)	<b>1.3 (1.0, 1.7)*</b>	1.2 (0.9, 1.7)	0.6 (0.3, 1.2)
US native <sup>c</sup>	1.0	1.0	1.0	1.0	1.0
<b>Current alcohol use<sup>d</sup></b>					
Lived in the US for 6 years	1.0 (0.8, 1.3)	<b>0.7 (0.5, 0.9)*</b>	<b>0.6 (0.5, 0.7)***</b>	0.8 (0.6, 1.0)	<b>0.4 (0.2, 0.7)**</b>
Lived in the US for > 6 years	<b>1.2 (1.0, 1.5)*</b>	1.1 (0.8, 1.5)	1.0 (0.8, 1.3)	1.3 (0.9, 1.7)	<b>0.5 (0.3, 0.8)**</b>
US native	1.0	1.0	1.0	1.0	1.0
<b>Current marijuana use<sup>e</sup></b>					
Lived in the US for 6 years	<b>0.6 (0.4, 0.9)*</b>	<b>0.2 (0.1, 0.5)***</b>	<b>0.5 (0.4, 0.7)***</b>	<b>0.4 (0.3, 0.6)***</b>	<b>0.5 (0.3, 0.8)*</b>
Lived in the US for > 6 years	0.9 (0.7, 1.2)	0.8 (0.6, 1.1)	0.8 (0.6, 1.1)	1.0 (0.8, 1.4)	0.9 (0.6, 1.4)
US native	1.0	1.0	1.0	1.0	1.0
<b>Ever had sexual intercourse</b>					
Lived in the US for 6 years	0.9 (0.7, 1.1)	<b>0.6 (0.4, 0.9)*</b>	0.8 (0.6, 1.1)	0.8 (0.6, 1.1)	<b>0.5 (0.3, 0.8)**</b>
Lived in the US for > 6 years	1.0 (0.8, 1.2)	1.3 (0.9, 1.8)	1.2 (1.0, 1.5)	1.3 (1.0, 1.7)	<b>0.6 (0.4, 0.9)*</b>
US native	1.0	1.0	1.0	1.0	1.0
<b>Had sexual intercourse with four or more persons during their life</b>					
Lived in the US for 6 years	1.2 (0.8, 1.6)	0.8 (0.4, 1.3)	0.7 (0.5, 1.1)	1.4 (1.0, 2.0)	0.4 (0.1, 1.1)
Lived in the US for > 6 years	1.1 (0.9, 1.5)	1.3 (0.9, 2.0)	1.2 (1.0, 1.6)	1.1 (0.7, 1.7)	0.5 (0.2, 1.1)
US native	1.0	1.0	1.0	1.0	1.0

\*  
p<.05;

\*\*\*  
p<.01;

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p<.001(Statistically significant results are shown in bold).

Abbreviations: AOR= adjusted odds ratio (logistic regression models control for sex, race/ethnicity, and grade); CI = confidence interval.

<sup>a</sup> Smoked cigarettes on at least 1 day during the 30 days before the survey.

<sup>b</sup> But not their whole life.

<sup>c</sup> Have always lived in the US.

<sup>d</sup> Had at least one drink of alcohol on at least 1 day during the 30 days before the survey.

<sup>e</sup> Used marijuana one or more times during the 30 days before the survey.

Table 6

Percentage of Students Who Engaged in Behaviors Associated with Physical Activity and Who Were Overweight or Obese, by Location and Time in the US—Selected U.S. Sites, Youth Risk Behavior Surveys

	Florida (2011) % (95% CI)	Boston (2009 and 2011) % (95% CI)	New York City (2011) % (95% CI)	San Francisco (2009 and 2011) % (95% CI)	Seattle (2010) % (95% CI)
<b>Watched television 3 or more hours/day<sup>a</sup></b>					
Lived in the US for 6 years	43.3 (38.8–48.0)	33.0 (24.2–43.3)	34.4 (26.6–43.2)	22.3 (19.3–25.6)	24.8 (18.0–33.1)
Lived in the US for > 6 years <sup>b</sup>	38.2 (33.8–42.8)	37.9 (31.9–44.4)	34.0 (29.5–38.9)	26.8 (22.5–31.6)	25.5 (19.2–33.0)
US native <sup>c</sup>	36.2 (34.0–38.5)	45.4 (42.3–48.4)	39.4 (36.0–42.9)	29.9 (27.6–32.4)	21.9 (18.9–25.2)
<b>Used computers 3 or more hours/day<sup>a,d</sup></b>					
Lived in the US for 6 years	41.0 (36.3–45.9)	29.0 (21.0–38.6)	33.8 (29.5–38.5)	38.5 (34.4–42.8)	28.3 (21.9–35.8)
Lived in the US for > 6 years	38.7 (35.3–42.1)	32.1 (26.1–38.7)	43.4 (40.6–46.1)	41.4 (36.4–46.6)	33.5 (26.1–41.8)
US native	34.4 (32.7–36.2)	37.8 (35.0–40.6)	45.5 (43.6–47.4)	39.9 (37.8–42.0)	27.6 (24.9–30.4)
<b>Physically active at least 60 minutes/day on 5 or more days<sup>e</sup></b>					
Lived in the US for 6 years	33.4 (29.0–38.0)	14.3 (10.0–19.9)	31.7 (26.5–37.4)	21.9 (19.1–24.9)	15.8 (11.2–21.8)
Lived in the US for > 6 years	44.1 (40.9–47.5)	23.7 (18.6–29.6)	42.0 (37.8–46.3)	37.1 (32.7–41.6)	39.7 (33.2–46.6)
US native	44.7 (42.5–47.0)	29.5 (26.8–32.3)	39.5 (37.5–41.6)	36.6 (34.1–39.3)	43.2 (39.8–46.7)
<b>Overweight<sup>f</sup></b>					
Lived in the US for 6 years	14.5 (10.9–19.2)	14.3 (9.5–21.1)	14.1 (11.7–16.9)	7.8 (5.9–10.3)	12.1 (8.2–17.6)
Lived in the US for > 6 years	16.3 (13.3–19.7)	17.0 (12.6–22.4)	12.8 (10.6–15.4)	12.5 (9.7–16.1)	17.0 (12.6–22.6)
US native	13.5 (12.4–14.6)	19.6 (17.2–22.3)	16.2 (15.1–17.3)	13.4 (12.0–14.9)	13.2 (11.3–15.3)
<b>Obese<sup>g</sup></b>					
Lived in the US for 6 years	15.4 (12.2–19.1)	10.8 (7.6–15.1)	6.8 (5.3–8.8)	5.2 (3.7–7.3)	8.6 (4.5–15.8)
Lived in the US for > 6 years	9.4 (7.2–12.4)	10.5 (6.7–16.1)	10.7 (8.4–13.5)	6.7 (4.5–9.8)	6.1 (3.4–10.6)
US native	11.3 (10.2–12.6)	16.6 (14.3–19.2)	12.3 (11.1–13.6)	8.9 (7.6–10.4)	8.1 (6.6–9.8)

Abbreviations: CI = confidence interval.

<sup>a</sup> On an average school day.

<sup>b</sup> But not their whole life.



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<sup>c</sup> Have always lived in the US.

<sup>d</sup> Played video or computer games or used a computer for something that was not school work.

<sup>e</sup> During the 7 days before the survey, were physically active doing any kind of physical activity that increased their heart rate and made them breathe hard some of the time.

<sup>f</sup> Students who were 85th percentile but <95th percentile for body mass index, based on sex- and age-specific reference data from the 2000 CDC growth charts.

<sup>g</sup> Students who were 95th percentile for body mass index, based on sex- and age-specific reference data from the 2000 CDC growth charts.

Adjusted Odds of Engaging in Behaviors Associated with Physical Activity and Being Overweight or Obese, by Location and Time in the US—Selected U.S. Sites, Youth Risk Behavior Surveys

**Table 7**

	Florida (2011) AOR (95% CI)	Boston (2009 and 2011) AOR (95% CI)	New York City (2011) AOR (95% CI)	San Francisco (2009 and 2011) AOR (95% CI)	Seattle (2010) AOR (95% CI)
<b>Watched television 3 or more hours/day<sup>a</sup></b>					
Lived in the US for 6 years	1.0 (0.9, 1.3)	<b>0.6 (0.4, 1.0)*</b>	1.0 (0.7, 1.3)	<b>0.8 (0.6, 0.9)*</b>	0.7 (0.5, 1.1)
Lived in the US for > 6 years <sup>b</sup>	0.9 (0.7, 1.1)	0.7 (0.5, 1.0)	1.0 (0.8, 1.2)	1.0 (0.7, 1.3)	1.0 (0.7, 1.5)
US native <sup>c</sup>	1.0	1.0	1.0	1.0	1.0
<b>Used computers 3 or more hours/day<sup>d,d</sup></b>					
Lived in the US for 6 years	1.1 (0.9, 1.4)	0.7 (0.5, 1.0)	<b>0.7 (0.5, 0.8)***</b>	<b>0.8 (0.6, 0.9)**</b>	0.8 (0.5, 1.1)
Lived in the US for > 6 years	1.1 (0.9, 1.3)	<b>0.7 (0.6, 1.0)*</b>	0.9 (0.8, 1.0)	1.0 (0.8, 1.2)	1.2 (0.8, 1.7)
US native	1.0	1.0	1.0	1.0	1.0
<b>Physically active at least 60 minutes/day on 5 or more days<sup>e</sup></b>					
Lived in the US for 6 years	<b>0.6 (0.5, 0.8)***</b>	<b>0.4 (0.3, 0.6)***</b>	<b>0.7 (0.6, 1.0)*</b>	<b>0.4 (0.4, 0.5)***</b>	<b>0.3 (0.2, 0.5)***</b>
Lived in the US for > 6 years	1.1 (0.9, 1.3)	0.8 (0.6, 1.1)	1.1 (0.9, 1.4)	1.0 (0.8, 1.2)	1.1 (0.8, 1.7)
US native	1.0	1.0	1.0	1.0	1.0
<b>Overweight<sup>f</sup></b>					
Lived in the US for 6 years	1.0 (0.7, 1.4)	0.7 (0.4, 1.1)	0.9 (0.7, 1.1)	<b>0.6 (0.4, 0.9)**</b>	0.7 (0.4, 1.3)
Lived in the US for > 6 years	1.1 (0.9, 1.5)	0.8 (0.5, 1.1)	0.8 (0.7, 1.0)	1.0 (0.7, 1.4)	1.3 (0.8, 2.0)
US native	1.0	1.0	1.0	1.0	1.0
<b>Obese<sup>g</sup></b>					
Lived in the US for 6 years	1.3 (0.9, 1.7)	<b>0.6 (0.4, 1.0)*</b>	<b>0.5 (0.4, 0.8)***</b>	0.7 (0.5, 1.0)	0.8 (0.4, 1.7)
Lived in the US for > 6 years	0.7 (0.5, 1.0)	0.6 (0.3, 1.0)	0.9 (0.7, 1.3)	0.8 (0.5, 1.3)	0.7 (0.4, 1.3)
US native	1.0	1.0	1.0	1.0	1.0

\* p<.05;

\*\* p<.01;

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p<.001 (Statistically significant results are shown in bold).

Abbreviations: AOR= adjusted odds ratio (logistic regression models control for sex, race/ethnicity, and grade); CI = confidence interval.

- <sup>a</sup>On an average school day.
- <sup>b</sup>But not their whole life.
- <sup>c</sup>Have always lived in the U.S.
- <sup>d</sup>Played video or computer games or used a computer for something that was not school work.
- <sup>e</sup>During the 7 days before the survey, were physically active doing any kind of physical activity that increased their heart rate and made them breathe hard some of the time.
- <sup>f</sup>Students who were 85th percentile but <95th percentile for body mass index, based on sex- and age-specific reference data from the 2000 CDC growth charts.
- <sup>g</sup>Students who were 95th percentile for body mass index, based on sex- and age-specific reference data from the 2000 CDC growth charts.